MAINTENANCE AND ADJUSTMENT

The maintenance and adjustments outlined in this chapter must be carried out and must be done in accordance with the Periodic Maintenance Chart to keep the motorcycle in good running condition. **The initial maintenance is vitally important and must not be neglected.**

With a basic knowledge of mechanics and the proper use of tools, you should be able to carry out many of the maintenance items described in this chapter. If you lack proper experience or doubt your ability, all adjustments, maintenance, and repair work should be completed by a qualified technician.

Please note that Kawasaki cannot assume any responsibility for damage resulting from incorrect or improper adjustment done by the owner.

EMISSION CONTROL INFORMATION

To protect the environment in which we all live, Kawasaki has incorporated crankcase emission (1) and exhaust emission (2) control systems in compliance with applicable regulations of the United States Environmental Protection Agency and California Air Resources Board. Additionally, Kawasaki has incorporated an evaporative emission control system (3) in compliance with applicable regulations of the United States Environmental Protection Agency.

1. Crankcase Emission Control System

This system eliminates the release of crankcase vapors into the atmosphere. Instead, the vapors are routed through an oil separator to the intake side of the engine. While the engine is operating, the vapors are drawn into the combustion chamber, where they are burned along with the fuel and air supplied by the fuel injection system.

2. Exhaust Emission Control System

This system reduces the amount of pollutants discharged into the atmosphere by the exhaust of this motorcycle. The fuel, ignition and exhaust systems of this motorcycle have been carefully designed and constructed to ensure an efficient engine with low exhaust pollutant levels. The exhaust system of this model motorcycle includes a catalytic converter system.

3. Evaporative Emission Control System

The evaporative emission control system for this vehicle consists of low permeation fuel hoses and a fuel tank.

3. Evaporative Emission Control System (California)

Vapors caused by fuel evaporation in the fuel system are not vented into the atmosphere. Instead, fuel vapors are routed into the running engine to be burned, or stored in a canister when the engine is stopped. Liquid fuel is caught by a vapor separator and returned to the fuel tank.

High Altitude Performance Adjustment Information

High altitude adjustment is not required.

MAINTENANCE AND WARRANTY

Proper maintenance is necessary to ensure that your motorcycle will continue to have low emission levels. This Owner's Manual contains those maintenance recommendations for your motorcycle. Those items identified by the Periodic Maintenance Chart are necessary to ensure compliance with the applicable standards.

As the owner of this motorcycle, you have the responsibility to make sure that the recommended maintenance is carried out according to the instructions in this Owner's Manual at your own expense.

The Kawasaki Limited Emission Control System Warranty requires that you return your motorcycle to an authorized Kawasaki dealer for remedy under warranty. Please read the warranty carefully, and keep it valid by complying with the owner's obligations it contains.

You should keep a maintenance record for your motorcycle. To assist you in keeping this record, we have provided space on pages 160 through 165 of this manual where an authorized Kawasaki dealer, or someone equally competent, can record the maintenance. You should also retain copies of maintenance work orders, bills, etc., as verification of this maintenance.

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED:

Federal law prohibits the following acts or the causing thereof: (1) the removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement, of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use, or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

Among those acts presumed to constitute tampering are the acts listed below:

* Replacement of the original exhaust system or muffler with a component not in compliance with Federal regulations.
* Removal of the muffler(s) or any internal portion of the muffler(s).
* Removal of the air box or air box cover.
* Modifications to the muffler(s) or air intake system by cutting, drilling, or other means if such modifications result in increased noise levels.

Periodic Maintenance Chart

K : Should be serviced by an authorized Kawasaki dealer.
* : For higher odometer readings, repeat at the frequency interval established here.
# : Service more frequently when operating in severe conditions: dusty, wet, muddy, high speed, or frequent starting/stopping.

1. Periodic Inspection (Engine Related Items)

Frequency / Operation (Engine Items)	Whichever comes first ➡ / Every ⬇	*Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
Valve clearance - inspect						●			104
Throttle control system (play, smooth return, no drag) - inspect	year	●		●		●		●	107
Idle speed - inspect		●		●		●		●	110

	Frequency	Whichever comes first ⬇	➡ *Odometer Reading km × 1 000 (mile × 1 000)							See Page
	Operation (Engine Items)	Every	1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	
K	Fuel leak (fuel hose and pipe) - inspect	year	●		●		●		●	–
K	Fuel hoses damage - inspect	year	●		●		●		●	–
K	Fuel hoses installation condition - inspect	year	●		●		●		●	–
	Coolant level - inspect		●		●		●		●	99
	Coolant leak - inspect	year	●		●		●		●	–
	Radiator hose damage - inspect	year	●		●		●		●	96

Frequency / Operation (Engine Items)	Whichever comes first ⬇ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
Radiator hoses installation condition - inspect	year	●		●		●		●	96
Air suction system damage - inspect				●		●		●	104
Evaporative emission control system - function (California model only)		●	●	●	●	●	●	●	103

2. Periodic Inspection (Chassis Related Items)

Frequency / Operation (Chassis Items)	Whichever comes first ↓ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000)							See Page
		1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	
Clutch and drive train:									
Clutch operation (play, engagement, disengagement) - inspect		●		●		●		●	111
K Drive belt deflection - inspect		●	●	●	●	●	●	●	102
K Drive belt wear - inspect		●	●	●	●	●	●	●	102
Wheels and tires:									
Tire air pressure - inspect	year			●		●		●	124

	Frequency	Whichever comes first ⬇	➡ *Odometer Reading km × 1 000 (mile × 1 000)							See Page
	Operation (Chassis Items)	Every	1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	
	Wheels/tires damage - inspect				●		●		●	126
	Tire tread wear, abnormal wear - inspect				●		●		●	126
K	Wheel bearings damage - inspect	year			●		●		●	–
Brake system:										
	Brake fluid leak - inspect	year	●	●	●	●	●	●	●	114
K	Brake hoses damage - inspect	year	●	●	●	●	●	●	●	114

	Frequency / Operation (Chassis Items)	Whichever comes first ↓ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
	Brake pad wear - inspect #			●	●	●	●	●	●	114
K	Brake hose installation condition - inspect	year	●	●	●	●	●	●	●	114
	Brake fluid level - inspect	6 month	●	●	●	●	●	●	●	115
	Brake operation (effectiveness, play, drag) - inspect	year	●	●	●	●	●	●	●	117
	Brake light switch operation - inspect		●	●	●	●	●	●	●	118

	Frequency / Operation (Chassis Items)	Whichever comes first ↓ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
Suspensions:										
K	Front forks/rear shock absorber operation (damping and smooth stroke) - inspect				●		●		●	–
K	Front forks/rear shock absorber oil leak - inspect	year			●		●		●	–
K	Swing arm pivot - lubricate						●			–
K	Uni-trak rocker arm operation - inspect				●		●		●	–

Frequency Operation (Chassis Items)	Whichever comes first ⬇ Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
K Uni-trak tie rods operation - inspect				●		●		●	–
K Uni-trak rocker arm bearings - lubricate						●			–
K Uni-trak tie rods bearings - lubricate						●			–
Steering system:									
K Steering play - inspect	year	●		●		●		●	–
K Steering stem bearings - lubricate	2 years					●			–

Frequency / Operation (Chassis Items)	Whichever comes first ↓ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
Electrical system:									
Lights and switches operation - inspect	year			●		●		●	–
Headlight aiming - inspect	year			●		●		●	135
Side stand switch operation - inspect	year			●		●		●	–
Engine stop switch operation - inspect	year			●		●		●	–
Chassis:									
Chassis parts - lubricate	year			●		●		●	139

Frequency / Operation (Chassis Items)	Whichever comes first ↓ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	6 (3.75)	12 (7.5)	18 (11.25)	24 (15)	30 (18.75)	36 (22.5)	See Page
Bolts and nuts tightness - inspect		●		●		●		●	146

3. Periodic Replacement

	Frequency / Change/Replacement Items	Whichever comes first ⬇ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	12 (7.5)	24 (15)	36 (22.5)	48 (30)	See Page
K	Air cleaner element # - replace	every 18 000 km (12 000 mile)						106
	Engine oil # - change	year	●	●	●	●	●	90
	Oil filter - replace	year	●	●	●	●	●	90
K	Fuel hoses - replace	4 years					●	–
K	Coolant - change	3 years				●		101
K	Radiator hoses and O-rings - replace	3 years				●		–
K	Brake hoses - replace	4 years					●	–
K	Brake fluid (front and rear) - change	2 years			●		●	117
K	Rubber parts of master cylinder and caliper - replace	4 years					●	–

	Frequency / Change/Replacement Items	Whichever comes first ⬇ / Every	➡ *Odometer Reading km × 1 000 (mile × 1 000) 1 (0.6)	12 (7.5)	24 (15)	36 (22.5)	48 (30)	See Page
K	Spark plug - replace			●	●	●	●	102

Engine Oil

In order for the engine, transmission, and clutch to function properly, maintain the engine oil at the proper level, and change the oil and replace the oil filter in accordance with the Periodic Maintenance Chart. Not only do dirt and metal particles collect in the oil, but the oil itself loses its lubricative quality if used too long.

⚠ WARNING

Motorcycle operation with insufficient, deteriorated, or contaminated engine oil will cause accelerated wear and may result in engine or transmission seizure, accident, and injury. Check the oil level before each ride and change the oil according to the periodic maintenance chart in the Owner's Manual.

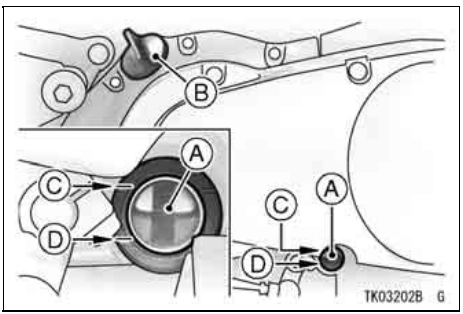
Oil Level Inspection

- If the oil has just been changed, start the engine and run it for several minutes at idle speed. This fills the oil filter with oil. Stop the engine, then wait several minutes until the oil settles.

NOTICE

Racing the engine before the oil reaches every part can cause engine seizure.

- If the motorcycle has just been used, wait several minutes for all the oil to drain down.
- Check the engine oil level through the oil level gauge. With the motorcycle held level, the oil level should come up between the upper and lower level lines next to the gauge.

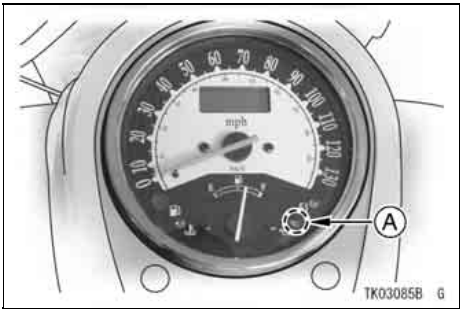


A. Oil Filler Gauge
B. Oil Filler Cap
C. Upper Level Line
D. Low Level Line

- If the oil level is too high, remove the excess oil through the oil filler opening using a syringe or some other suitable device.
- If the oil level is too low, add the oil to reach the correct level. Use the same type and brand of oil that is already in the engine.

NOTICE

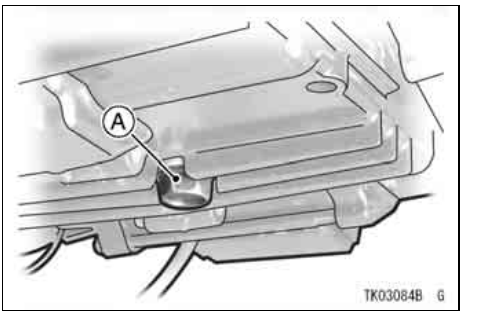
If the engine oil gets extremely low or if the oil pump does not function properly or oil passages are clogged, the warning light in the speedometer will light. If this light stays on when the engine speed is above the idle speed, stop the engine immediately and find the cause.



A. Oil Pressure Warning Light

Oil and/or Oil Filter Change

- Warm up the engine thoroughly, and then stop it.
- Place an oil pan beneath the engine.
- Remove the engine oil drain plug.



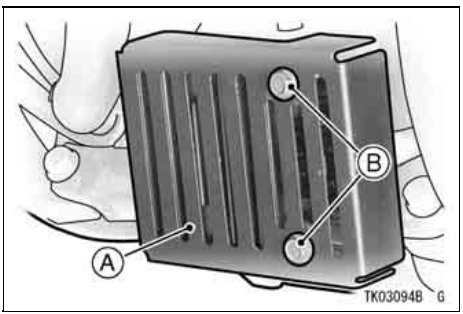
A. Engine Oil Drain Plug

- Let the oil completely drain with the motorcycle perpendicular to the ground.

⚠ WARNING

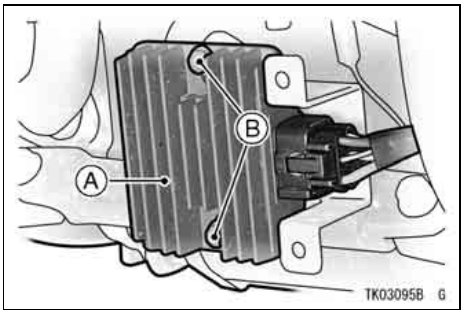
Motor oil is a toxic substance. Dispose of used oil properly. Contact your local authorities for approved disposal methods or possible recycling.

- Remove the cover.



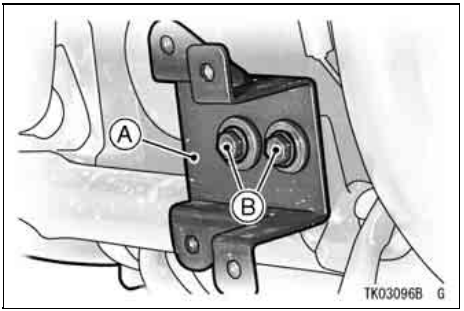
A. Cover
B. Bolt

- Remove the regulator/rectifier.



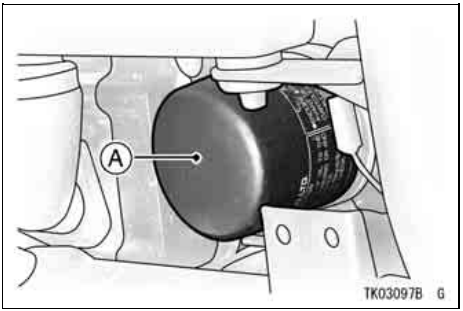
A. Regulator/Rectifier
B. Bolt

● Remove the bracket.



A. Bracket
B. Bolt

● Remove the oil filter cartridge and replace it with a new one.

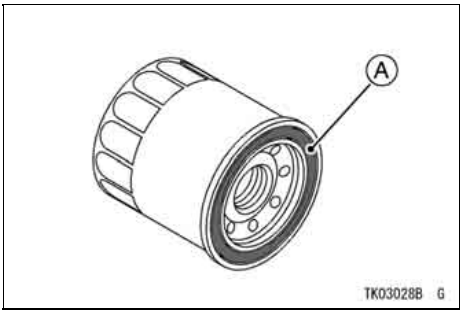


A. Cartridge

NOTE

○ *If a torque wrench or required Kawasaki special tool is not available, this item should be serviced by an authorized Kawasaki dealer.*

- Apply a thin film of oil to the packing and tighten the cartridge to the specified torque.



A. Packing

- Install the engine oil drain plug with a new gasket and tighten it to the specified torque.

NOTE

○ *Replace any gasket with a new one.*

- Fill the engine up to the upper level line with a good quality engine oil specified in the table.
- Start the engine.
- Check the oil level and for oil leakage.
- Be sure to install the parts removed.

Tightening Torque

Engine Drain Plug:
20 N·m (2.0 kgf·m, 14.5 ft·lb)
Cartridge:
18 N·m (1.8 kgf·m, 13 ft·lb)
Regulator/Rectifier Bolt:
7 N·m (0.7 kgf·m, 5.2 ft·lb)

Recommended Engine Oil

Type:	Kawasaki Performance 4-Stroke Motorcycle Oil* Kawasaki Performance 4-Stroke Semi-Synthetic Oil* Kawasaki Performance 4-Stroke Full Synthetic Oil* or other 4-stroke oils with API SG, SH, SJ, SL, SM and JASO MA, MA1, MA2 rating
Viscosity:	SAE 10W-40

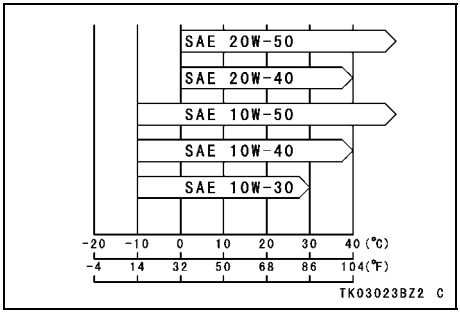
Engine Oil Capacity

Capacity:	3.0 L (3.2 US qt) [when filter is not removed] 3.2 L (3.4 US qt) [when filter is removed] 3.7 L (3.9 US qt) [when engine is completely dry]

NOTE

○ *Do not add any chemical additive to the oil. Oils fulfilling the above requirements are fully formulated and provide adequate lubrication for both the engine and the clutch.*

Although 10W-40 engine oil is the recommended oil for most conditions, the oil viscosity may need to be changed to accommodate atmospheric conditions in your riding area.



*Kawasaki Performance Oils and Lubricants have been specifically engineered for your vehicle. Consistent use of these products meets or exceeds warranty and service requirements and can help to extend the life of your Kawasaki.

Cooling System

Radiator and Cooling Fin -

Check the radiator fins for obstruction by insects or mud. Clean off any obstructions with a stream of low-pressure water.

⚠ WARNING

The cooling fan spins at high speed and can cause serious injuries. Keep your hands and clothing away from the cooling fan blades at all times.

NOTICE

Using high-pressure water, as from a car wash facility, could damage the radiator fins and impair the radiator's effectiveness.
Do not obstruct or deflect airflow through the radiator by installing unauthorized accessories in front of the radiator or behind the cooling fan. Interference with the radiator airflow can lead to overheating and consequent engine damage.

Radiator Hoses -

Check the radiator hoses for leakage, cracks or deterioration, and connections for leakage, or looseness each day before riding the motorcycle, and in accordance with the Periodic Maintenance Chart.

Coolant -

Coolant absorbs excessive heat from the engine and transfers it to the air at the radiator. If the coolant level becomes low, the engine overheats and may suffer severe damage. Check the coolant level each day before riding the motorcycle, also in accordance with the periodic maintenance chart and replenish coolant if the level is low. Change the coolant in accordance with the Periodic Maintenance Chart.

Information for Coolant

To protect the cooling system (consisting of the aluminum engine and radiator) from rust and corrosion, the use of corrosion and rust inhibitor chemicals in the coolant is essential. If coolant containing corrosion and rust inhibitor chemicals are not used, over a period of time, the cooling system accumulates rust and scale in the water jacket and radiator. This will clog up

the coolant passages, and considerably reduce the efficiency of the cooling system.

⚠ WARNING

Coolant containing corrosion inhitors for alminum engines and radiators include harmful chemicals for human body. Drinking coolant can result in serious injury or death. Use coolant in accordance with the instractions of the manufacturer.

Soft or distilled water must be used with the antifreeze (see below for antifreeze) in the cooling system.

NOTICE

If hard water is used in the system, it causes scale accumulation in the water passages, and considerably reduces the efficiency of the cooling system.

If the lowest ambient temperature encountered falls below the freezing point of water, use permanent antifreeze in the coolant to protect the cooling system against engine and radiator freeze-up, as well as from rust and corrosion.

Use a permanent type of antifreeze (soft water and ethylene glycol plus corrosion and rust inhibitor chemicals for aluminum engines and radiators) in the cooling system. On the mixture ratio of coolant, choose the suitable one referring to the relation between

freezing point and strength directed on the container.

NOTICE

Permanent types of antifreeze on the market have anti-corrosion and anti-rust properties. When it is diluted excessively, it loses its anti-corrosion property. Dilute a permanent type of antifreeze in accordance with the instructions of the manufacturer.

NOTE

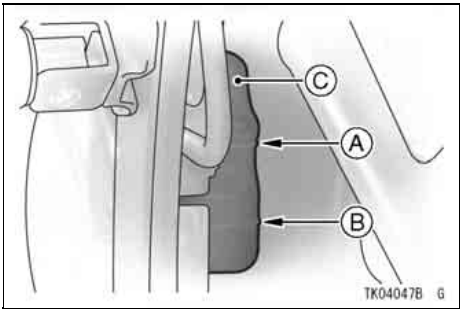
○ *A permanent type of antifreeze is installed in the cooling system when shipped. It is colored green and contains ethylene glycol. It is mixed at 50% and has the freezing point of −35°C (−31°F).*

Coolant Level Inspection

- Situate the motorcycle so that it is perpendicular to the ground.
- Check the coolant level through the coolant level gauge. The coolant level should be between the F (Full) and L (Low) marks.

NOTE

○ *Check the level when the engine is cold (room or atmospheric temperature).*

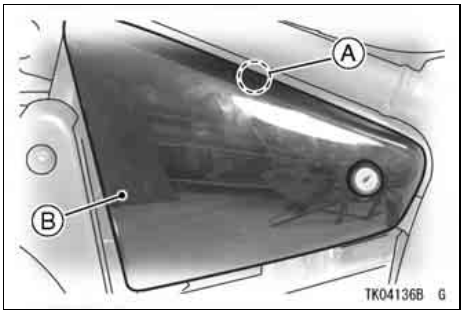


A. F (Full) Level Line
B. L (Low) Level Line
C. Reserve Tank

- If the amount of coolant is insufficient, add coolant.

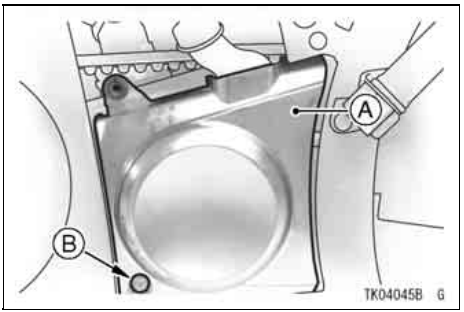
Coolant Filling

- Remove the seat.
- Remove the left side cover by removing the screw.



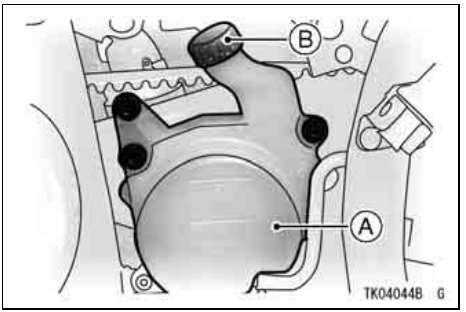
A. Screw
B. Left Side Cover

- Remove the reservoir tank cover.



A. Reservoir Tank Cover
B. Bolt

- Open the cap from the reservoir tank, and add coolant through the filler opening to the F (Full) mark.

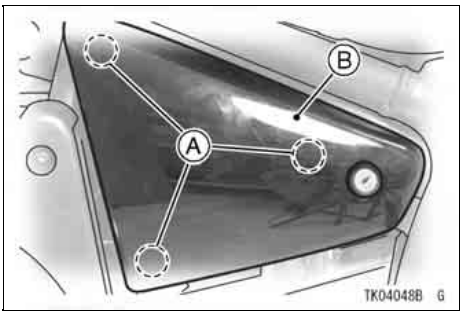


A. Reserve Tank
B. Reserve Tank Cap

- Install the cap after filling coolant.
- Install the parts removed.

NOTE

○ *When installing the left side cover, be sure to insert the projections of the left side cover to each holes.*



A. Projections
B. Left Side Cover

NOTE

○ *In an emergency you can add water alone to the coolant reserve tank, however it must be returned to the correct mixture ratio by the addition of antifreeze concentrate as soon as possible.*

NOTICE

If coolant must be added often, or the reserve tank completely runs dry, there is probably leakage in the system. Have the cooling system inspected by your authorized Kawasaki dealer.

Coolant Change

Have the coolant changed by an authorized Kawasaki dealer.

Drive Belt

In order for the belt and belt pulleys to function properly, check the drive belt in accordance with the Periodic Maintenance Chart.

Belt check and adjustment should be done by an authorized Kawasaki dealer.

NOTICE
Improper drive belt deflection can result in belt damage.

Spark Plugs

The standard spark plug is shown in the table. The spark plugs should be replaced in accordance with the Periodic Maintenance Chart.

Spark plug removal should be done by a competent mechanic following the instructions in the Service Manual.

Spark Plug

Standard Plug	NGK CPR7EA-9
Plug Gap	0.8 ~ 0.9 mm (0.032 ~ 0.036 in.)
Tightening Torque	18 N·m (1.8 kgf·m, 13 ft·lb)

NOTE

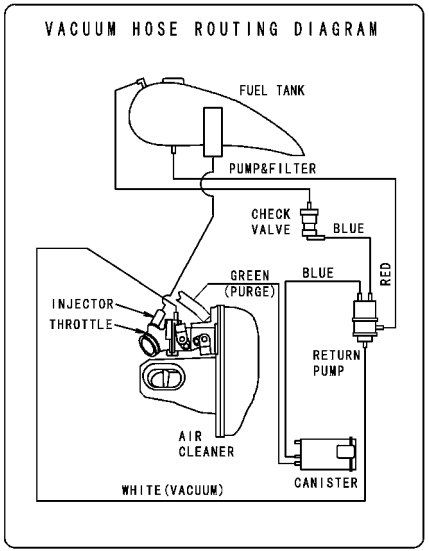
○ *Fit the plug cap securely onto the spark plug, and pull the cap lightly to make sure that it is properly installed.*

Evaporative Emission Control System (California model only)

This system routes fuel vapors from the fuel system into the running engine or stores the vapors in a canister when the engine is stopped. Although no adjustments are required, a thorough visual inspection must be made at the intervals specified by the Periodic Maintenance Chart.

Inspection

- Check that the hoses are securely connected.
- Replace any kinked, deteriorated, or damaged hoses.



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Valve Clearance

Valve and valve seat wear decreases valve clearance, upsetting valve timing.

NOTICE

If valve clearance is left unadjusted, wear will eventually cause the valves to remain partly open; which lowers performance, burns the valves and valve seats, and may cause serious engine damage.

Valve clearance for each valve should be checked and adjusted in accordance with the Periodic Maintenance Chart.

Inspection and adjustment should be done by a competent mechanic following the instructions in the Service Manual.

Kawasaki Clean Air System

The Kawasaki Clean Air System (KCA) is a secondary air suction system that helps the exhaust gases to burn more completely. When the spent fuel charge is released into the exhaust system, it is still hot enough to burn. The KCA System allows extra air into the exhaust system so that the spent fuel charge can continue to burn. This continued burning action tends to burn up a great deal of the normally unburned gases, as well as changing a significant portion of the carbon monoxide into carbon dioxide.

Air Suction Valves -

The air suction valve is essentially a check valve which allows fresh air to flow only from the air cleaner into the exhaust port. Any air that has passed the air suction valve is prevented from returning. Inspect the air suction valves

in accordance with the Periodic Maintenance Chart. Also, inspect the air suction valves whenever stable idling cannot be obtained, engine power is greatly reduced, or there are abnormal engine noise.

Air suction valve removal and inspection should be done by a competent mechanic following the instructions in the Service Manual.

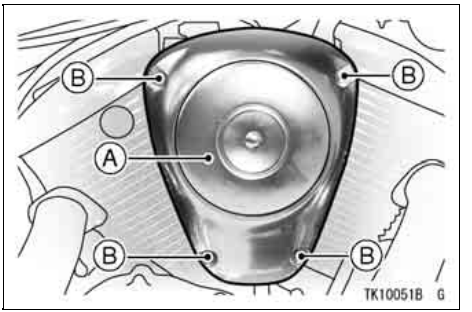
Air Cleaner

A clogged air cleaner restricts the engine's air intake, increasing fuel consumption, reducing engine power, and causing spark plug fouling.

The air cleaner element must be replaced in accordance with the Periodic Maintenance Chart. This motorcycle's air cleaner element consists of a wet paper filter, which can not be cleaned. In dusty, rainy, or on muddy conditions, the air cleaner element should be serviced more frequently than the recommended interval.

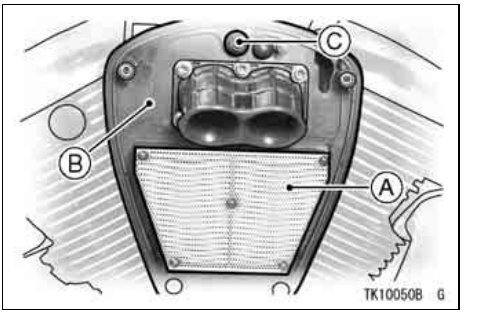
Element Removal

- Remove the bolts of the air cleaner cover located on the right-side of the engine.



A. Air Cleaner Cover
B. Bolt

- Remove the air cleaner screw and the air cleaner. If any part of the element is damaged, the element must be replaced.



A. Air Cleaner Element
B. Air Cleaner
C. Screw

⚠ WARNING

If dirt or dust is allowed to pass through into the fuel injection system, the throttle may stick or become inoperable resulting in a hazardous operating condition.

NOTICE

If dirt gets through into the engine, excessive engine wear and possibly engine damage will occur.

NOTE

○ *Element installation is performed in the reverse order of removal.*

Throttle Control System

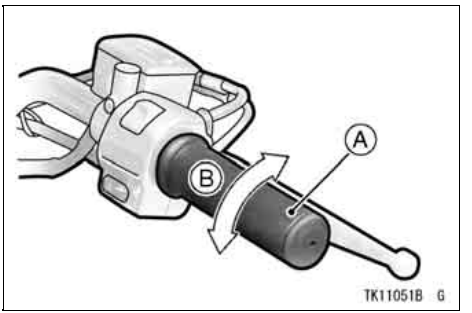
Check the throttle grip play, in accordance with the Periodic Maintenance Chart, and adjust the throttle grip play.

Throttle Grip -

The throttle grip controls the butterfly valves in the throttle body. If the throttle grip has excessive play due to either cable stretch or maladjustment, it will cause a delay in throttle response, especially at low engine speed. Also, the throttle valve may not open fully at full throttle. On the other hand, if the throttle grip has no play, the throttle will be hard to control, and idle speed will be erratic.

Inspection

- Check that there is 2 ~ 3 mm (0.08 ~ 0.12 in.) throttle grip play when lightly turning the throttle grip back and forth.

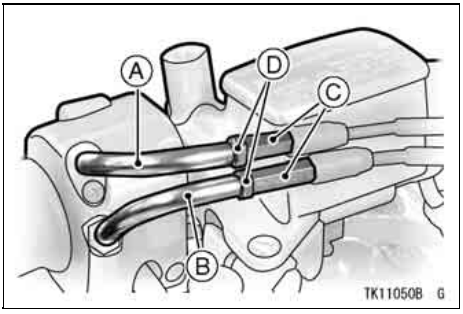


A. Throttle Grip
B. 2 ~ 3 mm (0.08 ~ 0.12 in.)

- If there is improper play, adjust it.

Adjustment

- Loosen the locknuts at the upper ends of the throttle cables, and screw both throttle cable adjusting nuts in completely so as to give the throttle grip plenty of play.
- Turn out the decelerator cable adjusting nut until there is no play when the throttle grip is completely closed. Tighten the locknut.



A. Accelerator Cable
B. Decelerator Cable
C. Adjusting Nuts
D. Locknuts

- Turn the accelerator cable adjusting nut until 2 ~ 3 mm (0.08 ~ 0.12 in.) of throttle grip play is obtained. Tighten the locknut.
- If the throttle cables cannot be adjusted by using the cable adjusting nuts at the upper ends of the throttle cables, further adjustment of the throttle cables should be done by a competent mechanic following the instructions in the Service Manual.

⚠ WARNING

Operation with improperly adjusted, incorrectly routed, or damaged cables could result in an unsafe riding condition. Be sure the control cables are adjusted and routed correctly, and are free from damage.

Idle Speed

The idle adjustment should be performed in accordance with the Periodic Maintenance Chart or whenever the idle speed is disturbed.

Adjustment

- Start the engine, and warm it up thoroughly.
- Wait until the idle speed drops before making the following adjustment.
- Adjust the idle speed to 950 ~ 1 050 r/min (rpm) by turning the idle adjusting screw located at the right front cylinder.

A. Idle Speed Adjusting Screw

- Open and close the throttle a few times to make sure that the idle speed does not change. Readjust if necessary.
- With the engine idling, turn the handlebar to each side. If handlebar movement changes the idle speed, the throttle cables may be improperly adjusted or incorrectly routed, or they may be damaged. Be sure to correct any of these conditions before riding.

⚠ WARNING

Operation with damaged cables could result in an unsafe riding condition. Replace damaged control cables before operation.

Clutch

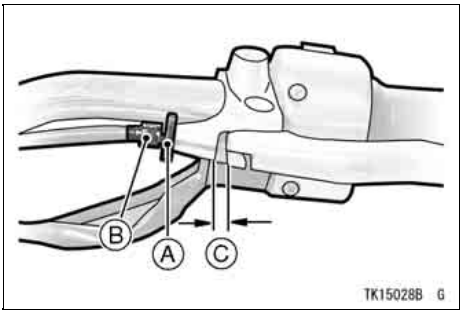
Due to friction plate wear and clutch cable stretch over a long period of use, the clutch must be adjusted in accordance with the Periodic Maintenance Chart.

⚠ WARNING

The engine and exhaust system get extremely hot during normal operation and can cause serious burns. Never touch a hot engine or an exhaust pipe during clutch adjustment.

Inspection

- Check that the clutch lever has 2 ~ 3 mm (0.08 ~ 0.12 in.) of play as shown in the figure.



A. Locknut
B. Adjuster
C. 2 ~ 3 mm (0.08 ~ 0.12 in.)

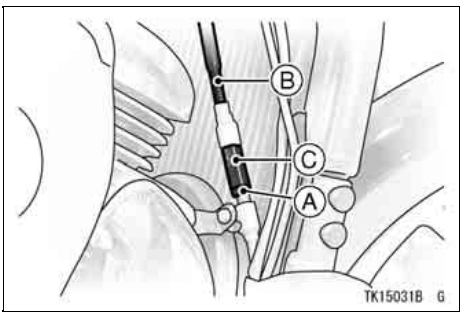
If the play is incorrect, adjust the lever play as follows.

Adjustment

⚠ WARNING

Too much cable play can prevent clutch disengagement and cause an accident resulting in serious injury or death. When adjusting the clutch or replacing the cable, be sure the upper end of the clutch outer cable is fully seated in its fitting, or it could slip into place later, creating enough cable play to prevent clutch disengagement.

- Turn the adjuster so that the clutch lever will have 2 ~ 3 mm (0.08 ~ 0.12 in.) of play.
- If it cannot be done, use the nuts at the middle of the clutch cable.



A. Locknut
B. Clutch Cable
C. Adjuster

NOTE

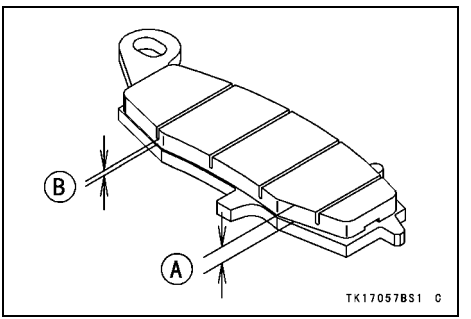
○ *After the adjustment is made, start the engine and check that the clutch does not slip and that it releases properly.*

○ *For minor corrections, use the adjuster at the clutch lever.*

Brakes

Brake Wear Inspection

Inspect the brakes for wear. For each front and rear disc brake caliper, if the thickness of either pad is less than 1 mm (0.04 in), replace both pads in the caliper as a set. Pad replacement should be done by an authorized Kawasaki dealer.



A. Lining Thickness
B. 1 mm (0.04 in.)

Disc Brake Fluid -

In accordance with the Periodic Maintenance Chart, inspect the brake fluid level in both the front and rear brake fluid reservoirs and change the brake fluid. The brake fluid should also be changed if it becomes contaminated with dirt or water.

Fluid Requirement

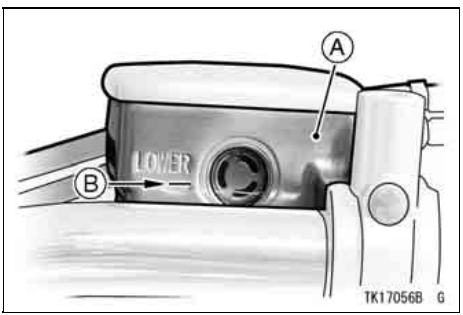
Use heavy-duty brake fluid only from a container marked DOT4 .

NOTICE

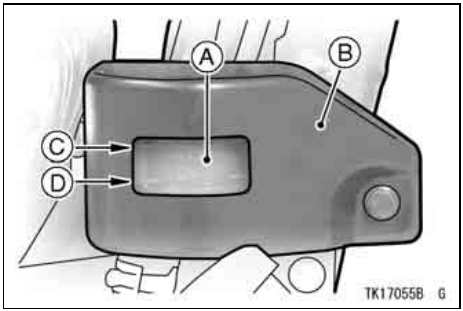
Do not spill brake fluid onto any painted surface.
Do not use fluid from a container that has been left open or that has been unsealed for a long time.
Check for fluid leakage around the fittings.
Check brake hose for damage.

Fluid Level Inspection

- The brake fluid level in the front brake fluid reservoir must be kept above the line (lower level line) next to the gauge and that in the rear brake fluid reservoir (located near the brake pedal) must be kept between the upper and lower level lines (reservoirs held horizontal).

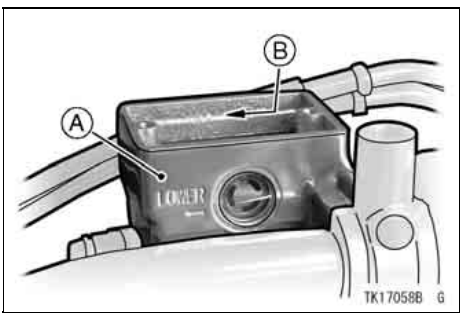


A. Front Brake Fluid Reservoir
B. Lower Level Line



A. Rear Brake Fluid Reservoir
B. Cover
C. Upper Level Line
D. Lower Level Line

- If the fluid level in either reservoir is lower than the lower level line, check for fluid leaks in the brake lines, and fill the reservoir to the upper level line. Inside the front brake fluid reservoir is a stepped line showing the upper level line. For the rear reservoir, take off the bolt and remove the cover from the reservoir.



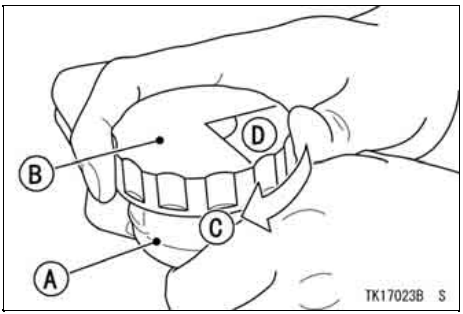
A. Front Brake Fluid Reservoir
B. Upper Level Line

⚠ WARNING

Mixing brands and types of brake fluid can reduce the brake system's effectiveness and cause an accident resulting in injury or death. Do not mix two brands of brake fluid. Change the brake fluid in the brake line completely if the brake fluid must be refilled but the type and brand of the brake fluid that is already in the reservoir are unidentified.

NOTE

○ *First, tighten until slight resistance is felt indicating that the cap is seated on the reservoir body; then, tighten the cap an additional 1/6 turn while holding the brake fluid reservoir body.*



A. Reservoir
B. Cap
C. Clockwise
D. 1/6 turn

Fluid Change

Have the brake fluid changed by an authorized Kawasaki dealer.

Front and Rear Brakes -

Disc and disc pad wear is automatically compensated for and has no effect on the brake lever or pedal action. So there are no parts that require adjustment on the front and rear brakes.

⚠ WARNING

Air in the brake lines diminish braking performance and can cause an accident resulting in injury or death. If the brake lever or pedal feels mushy when it is applied, there might be air in the brake lines or the brake may be defective. Have the brake checked immediately by an authorized Kawasaki dealer.

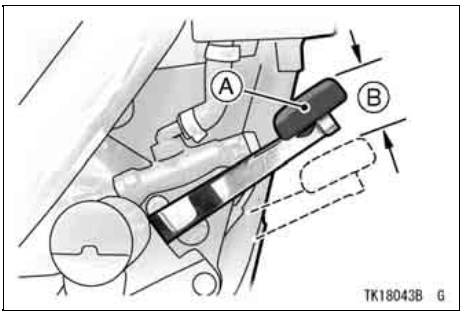
Brake Light Switches

When either the front or rear brake is applied, the brake light goes on. The front brake light switch requires no adjustment, but the rear brake light switch should be adjusted in accordance with the Periodic Maintenance Chart.

Inspection

- Turn the ignition key to “ON”.
- The brake light should go on when the front brake is applied.
- If it does not, ask your authorized Kawasaki dealer to inspect the front brake light switch.

- Check the operation of the rear brake light switch by depressing the brake pedal. The brake light should go on after about 10 mm (0.4 in.) of pedal travel.

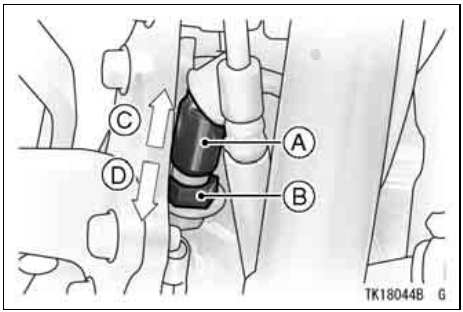


A. Brake Pedal
B. 10 mm (0.4 in.)

- If it does not, adjust the rear brake light switch.

Adjustment

- To adjust the rear brake light switch, move the switch up or down by turning the adjusting nut.



A. Rear Brake Light Switch
B. Adjusting Nut
C. Lights sooner.
D. Lights later.

NOTICE

To avoid damaging the electrical connections inside the switch, be sure that the switch body does not turn during adjustment.

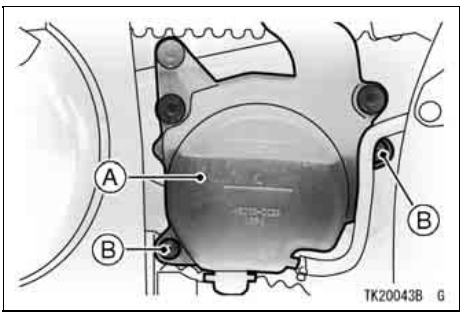
Rear Shock Absorber

The rear shock absorber can be adjusted by changing the spring preload for various riding and loading conditions.

Spring Preload Adjustment

The rear shock absorber spring preload adjuster has 7 positions.

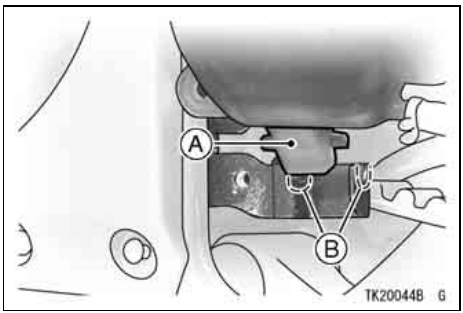
- Remove the left side cover and reservoir tank cover (see “Cooling System” section in this chapter).
- Remove the reservoir tank.



A. Reservoir Tank
B. Bolt

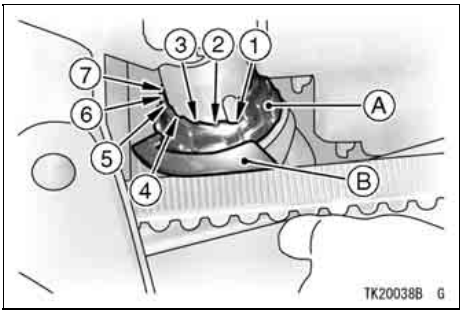
NOTE

○ *When removing the reservoir tank, hook the under part of the reservoir tank to the holder of the frame as shown in the figure.*



A. Under Part of Reservoir Tank
B. Holder

- In accordance with the following table, turn the preload adjuster with the wrench from the tool kit.



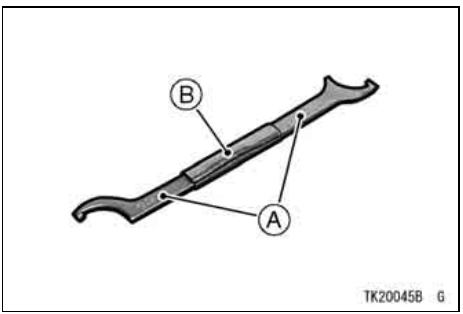
A. Spring Preload Adjuster
B. Wrench

Position	1	2	3	4	5	6	7
Spring Action	⟶				Strong		

The standard setting position for an average-build rider of 68 kg (150 lb) with no passenger and no accessories is No. 4.

NOTE

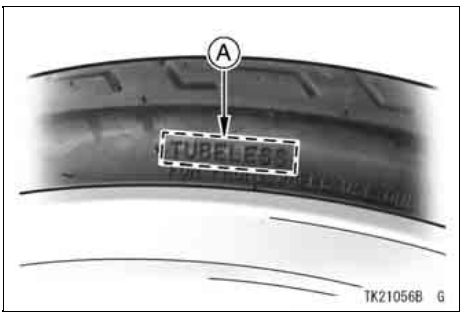
○ *This motorcycle has two hook wrenches in the tool kit. When changing the spring preload of the rear shock absorber, turn the adjuster by using the suitable hook wrenches.*



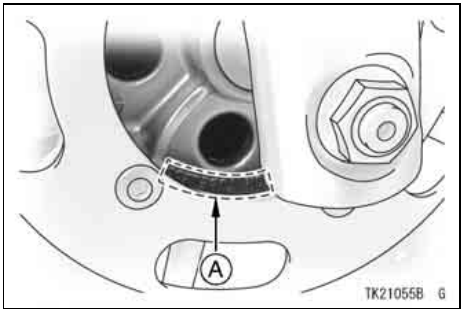
A. Hook Wrench
B. Extension Bar

Wheels

Tubeless tires are installed on the wheels of this motorcycle. The indications of TUBELESS on the tire side wall and the rim show that the tire and rim are specially designed for tubeless use.



A. TUBELESS Mark



A. TUBELESS Mark

The tire and rim form a leakproof unit by making airtight contacts at the tire chamfers and the rim flanges instead of using an inner tube.

⚠ WARNING

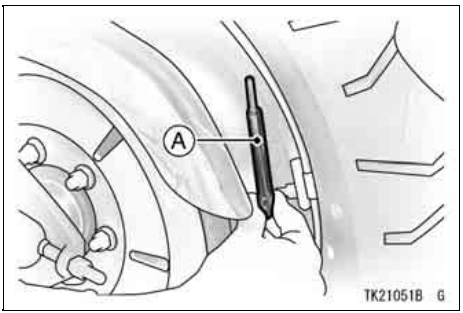
Installing a tube inside a tubeless-type tire can create excessive heat build up that can damage the tube and cause rapid deflation. The tires, rims, and air valves on this motorcycle are designed only for tubeless type wheels. The recommended standard tires, rims, and air valves must be used for replacement. Do not install tube-type tires on tubeless rims. The beads may not seat properly on the rim causing tire deflation. Do not install a tube inside a tubeless tire. Excessive heat build-up may damage the tube causing tire deflation.

Tires -

Payload and Tire Pressure

Failure to maintain proper inflation pressures or observe payload limits for your tires may adversely affect handling and performance of your motorcycle and can result in loss of control. The maximum recommended load in addition to vehicle weight is 180 kg (397 lb), including rider, passenger, baggage, and accessories.

- Remove the air valve cap.
- Check the tire pressure often, using an accurate gauge.
- Make sure that the air valve cap is securely installed.



A. Tire Pressure Gauge

NOTE

○ *Measure the tire pressure when the tires are cold (that is, when the motorcycle has not been ridden more than a mile during the past 3 hours).*

○ *Tire pressure is affected by changes in ambient temperature and altitude, and so the tire pressure should be checked and adjusted when your riding involves wide variations in temperature or altitude.*

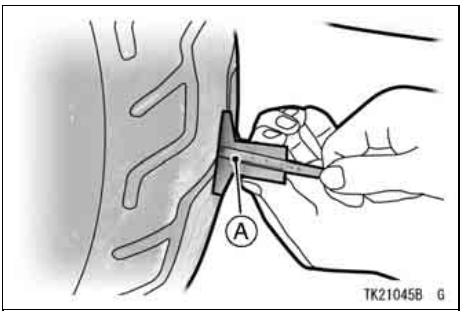
Tire Air Pressure (when cold)

Front	Up to 180 kg (397 lb) Load	280 kPa (2.80 kgf/cm², 40 psi)
Rear	Up to 97.5 kg (215 lb) Load	200 kPa (2.00 kgf/cm², 28 psi)
	97.5 ~ 180 kg (215 ~ 397 lb) Load	225 kPa (2.25 kgf/cm², 32 psi)

Tire Wear, Damage

As the tire tread wears down, the tire becomes more susceptible to puncture and failure. An accepted estimate is that 90% of all tire failures occur during the last 10% of tread life (90% worn). So it is false economy and unsafe to use the tires until they are bald.

- In accordance with the Periodic Maintenance Chart, measure the depth of the tread with a depth gauge, and replace any tire that has worn down to the minimum allowable tread depth.



A. Tire Depth Gauge

Minimum Tread Depth

Front	—	1 mm (0.04 in.)
Rear	Under 130 km/h (80 mph)	2 mm (0.08 in.)
	Over 130 km/h (80 mph)	3 mm (0.12 in.)

- Visually inspect the tire for cracks and cuts, replacing the tire in case of bad damage. Swelling or high spots indicate internal damage, requiring tire replacement.
- Remove any imbedded stones or other foreign particles from the tread.

NOTE

○ *Have the wheel balance inspected whenever a new tire is installed.*

⚠ WARNING

Tires that have been punctured and repaired do not have the same capabilities as undamaged tires and can suddenly fail, causing an accident resulting in serious injury or death. Replace damaged tires as soon as possible. To ensure safe handling and stability, use only the recommended standard tires for replacement, inflated to the standard pressure. If it is necessary to ride on a repaired tire, do not exceed 100 km/h (60 mph) until the tire is replaced.

NOTE

○ *When operating on public roadways, keep maximum speed under traffic law limits.*

○ *Most counters may have their own regulations requiring a minimum tire thread depth; be sure to follow them.*

Standard Tire (Tubeless)

Front	80/90-21 M/C48H ● DUNLOP “D404FJ”
Rear	180/70-15 M/C 76H ● DUNLOP “D404”

⚠ WARNING

Mixing tire brands and types can adversely affect handling and cause an accident resulting in injury or death. Always use the same manufacturer's tires on both front and rear wheels.

⚠ WARNING

New tires are slippery and may cause loss of control and injury. A break-in period of 160 km (100 miles) is necessary to establish normal tire traction. During break-in, avoid sudden and maximum braking and acceleration, and hard cornering.

Battery

The battery installed in this vehicle is a sealed type, and the sealing strip should not be removed at any time after the specified electrolyte has been installed in the battery for initial service. It is not necessary to check the battery electrolyte level or add distilled water.

However, in order to maximize battery life and ensure that it will provide the power needed to start the motorcycle you must properly maintain the battery's charge. When used regularly, the charging system in the motorcycle helps keep the battery fully charged. If the motorcycle is only used occasionally or for short periods of time, the battery is more likely to discharge.

Due to their internal composition, batteries continually self discharge. The discharge rate depends on the type of battery and ambient temperature. As temperatures rise, so does the discharge rate. Every 15°C (27°F) doubles the rate.

Electrical accessories, such as digital clocks and computer memory, also draw current from the battery even when the key is switched off. Combine such “key-off” draws with hot temperature, and a battery can go from fully charged to completely discharged in a matter of days.

Self-discharge		
Temperature	Approx. Number of Days From 100% Charged to 100% discharged	
	Lead-Antimony Battery	Lead-Calcium Battery
40°C (104°F)	100 Days	300 Days
25°C (77°F)	200 Days	600 Days
0°C (32°F)	550 Days	950 Days

Current Drain		
Discharging Ampere	Days from 100% Charged to 50% Discharged	Days from 100 % Charged to 100 % Discharged
7 mA	60 Days	119 Days
10 mA	42 Days	83 Days
15 mA	28 Days	56 Days
20 mA	21 Days	42 Days
30 mA	14 Days	28 Days

In extremely cold weather the fluid in an inadequately charged battery can easily freeze, which can crack the case and buckle the plates. A fully charged battery can withstand sub-freezing temperatures with no damage.

Battery Sulfation

A common cause of battery failure is sulfation.

Sulfation occurs when the battery is left in a discharged condition for an extended time. Sulfate is a normal by product of the chemical reactions within a battery. But when continuous discharge allows the sulfate to crystallize in the cells, the battery plates become permanently damaged and will not hold a charge. Battery failure due to sulfation is not warrantable.

Battery Maintenance

It is the owner's responsibility to keep the battery fully charged. Failure to do so can lead to battery failure and leave you stranded.

If you are riding your vehicle infrequently, inspect the battery voltage weekly using a voltmeter. If it drops below 12.6 volts, the battery should be charged using an appropriate charger (check with your Kawasaki dealer). If you will not be using the motorcycle for longer than two weeks, the battery

should be charged using an appropriate charger. Do not use an automotive-type quick charger that may overcharge the battery and damage it.

Kawasaki-recommended chargers are
Battery Mate 150-9
OptiMate PRO 4-S/PRO S/PRO 2
Yuasa MB-2040/2060
Christie C10122S

If the above chargers are not available, use equivalent one.

For more details, ask your Kawasaki dealer.

Battery Charging
- Remove the battery from the motorcycle (see Battery Removal).
- Attach the leads from the charger and charge the battery at a rate that is 1/10th of the battery capacity. For example, the charging rate for a 10 Ah battery would be 1.0 ampere.
- The charger will keep the battery fully charged until you are ready to reinstall the battery in the motorcycle (see Battery Installation).

NOTICE

Never remove the sealing stirp, or the battery can be damaged. Do not install a conventional battery is this vehicle, or the electrical system cannot work properly.

NOTE

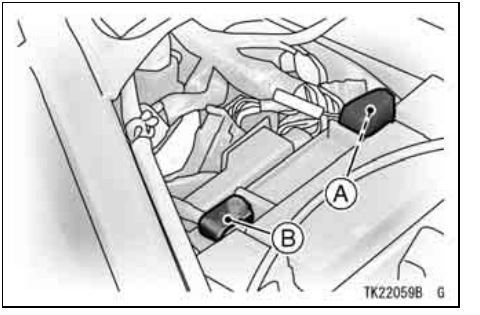
○ *If you charge the sealed battery, never fail to observe the instructions shown on the label on the battery.*

⚠ WARNING

Lead is a toxic substance. Battery posts, terminals and related accessories contain lead and lead compounds. Wash hands after handling.

Battery Removal

- Remove the seat and tool kit case (see “Jump Starting” section in the “ How to Ride the Motorcycle” chapter).
- Disconnect the cables from the battery, first from the (−) terminal and then the (+) terminal.



A. (+) Terminal
B. (−) Terminal

- Pull the battery out of the motorcycle.
- Clean the battery using a solution of baking soda and water. Be sure that the cable connections are clean.

Battery Installation

- Connect the capped (red) cable to the (+) terminal, and then connect the black cable to the (−) terminal.

NOTE

○ *Install the battery in the reverse order of the Battery Removal.*

NOTICE

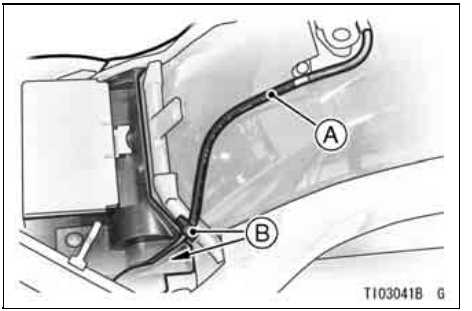
Installing the (−) cable to the (+) terminal of the battery or the (+) cable to the (−) terminal of the battery can seriously damage the electrical system.

- Put a light coat of grease on the terminals to prevent corrosion.
- Cover the (+) terminal with its protective cap.
- Reinstall the parts removed.

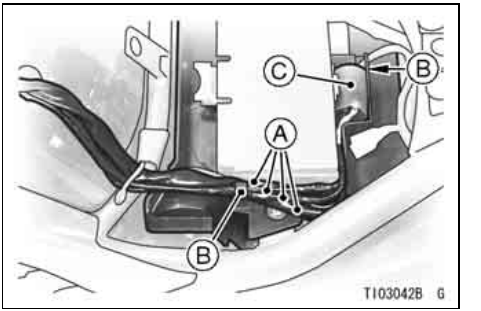
NOTE

○ *When installing the seat, or tool kit case, be sure not to pinch the hose, or wires. The hose or wires should be routed as shown in the figure.*

○ *After installing the tool kit case, run the seat lock cable or wire along the guide and put the connectors into the original place.*



A. Seat Lock Cable
B. Guide



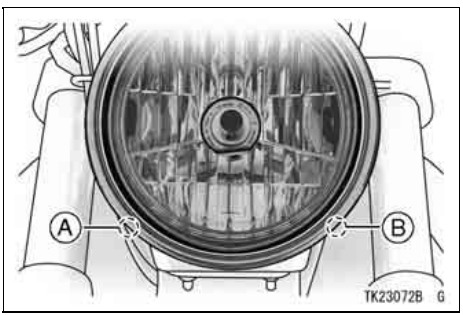
A. Wires
B. Guide
C. Connectors

Headlight Beam

Horizontal Adjustment

The headlight beam is adjustable horizontally. If not properly adjusted horizontally, the beam will point to one side rather than straight ahead.

- Turn the horizontal adjusting screw on the headlight rim in or out until the beam points straight ahead.



A. Vertical Adjusting Screw
B. Horizontal Adjusting Screw

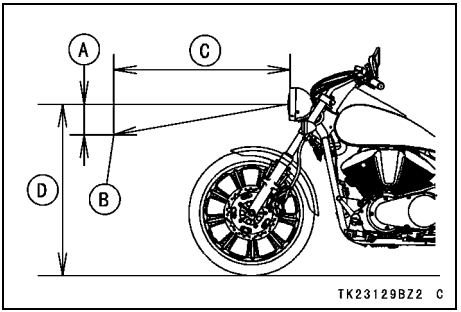
Vertical Adjustment

The headlight beam is adjustable vertically. If adjusted too low, neither low nor high beam will illuminate the road far enough ahead. If adjusted too high, the high beam will fail to illuminate the road close ahead, and the low beam will blind oncoming drivers.

- Turn the vertical adjusting screw on the headlight rim in or out to adjust the headlight vertically.

NOTE

○ *On high beam, the brightest point should be slightly below horizontal. The proper angle is 0.4 degrees below horizontal. This is a 50 mm (2.0 in.) drop at 7.6 m (25 ft) measured from the center of the headlight, with the motorcycle on its wheels and the rider seated.*



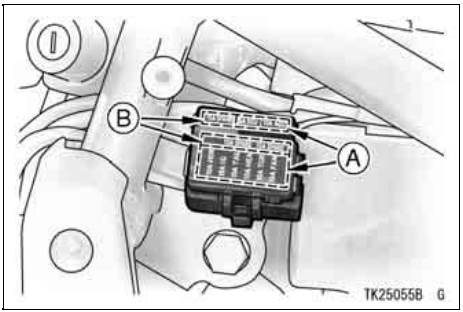
A. 50 mm (2.0 in.)
B. Center of Brightest Spot
C. 7.6 m (25 ft)
D. Height of Headlight Center

Fuses

The fuses are arranged in the fuse box located behind left side cover.

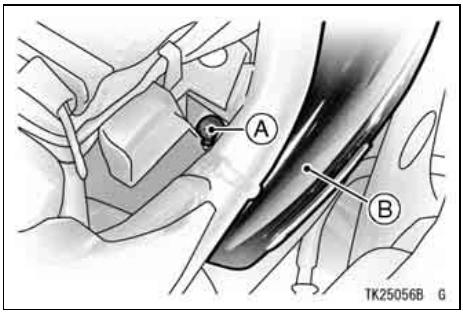
The main fuse is mounted on the starter relay behind right side cover. If a fuse fails during operation, inspect the electrical system to determine the cause, and then replace it with a new fuse of proper amperage.

- Remove the seat.
- Remove the left side cover (see "Cooling System" section in this chapter).



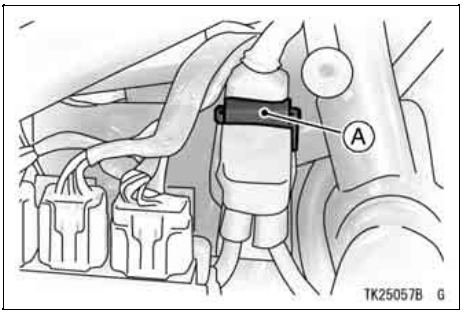
A. Fuse Box
B. Spare Fuse

- Remove the screw



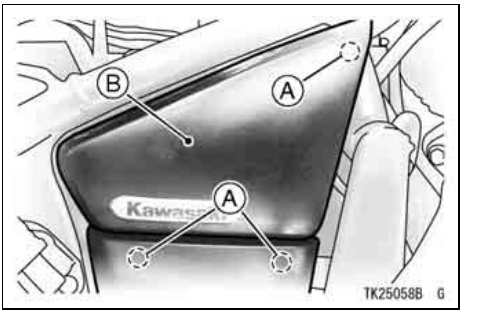
A. Screw
B. Right Side Cover

- Pull out the right side cover and then inspect the main fuse.



A. Main Fuse

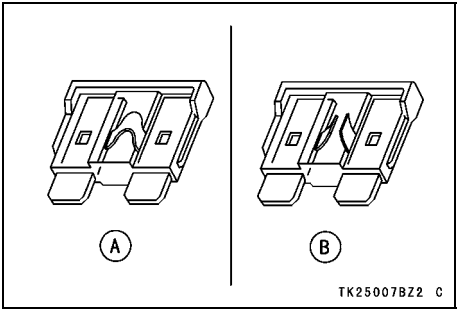
- When installing the right side cover, be sure to insert the projections of the right side cover.



A. Projections
B. Right Side Cover

⚠ WARNING

Substituting fuses can cause wiring to overheat, catch fire and/or fail. Do not use any substitute for the standard fuse. Replace the blown fuse with a new one of the correct capacity, as specified on the junction box and main fuse.



A. Normal
B. Failed

General Lubrication

Lubricate the points shown below, with either motor oil or regular grease, in accordance with the Periodic Maintenance Chart or whenever the vehicle has been operated under wet or rainy conditions.

Before lubricating each part, clean off any rusty spots with rust remover and wipe off any grease, oil, dirt, or grime.

NOTE

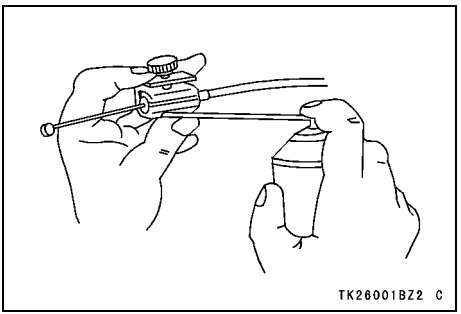
○ *A few drops of oil are effective to keep bolts and nuts from rusting and sticking. This makes removal easier. Badly rusted nuts, bolts, etc., should be replaced with new ones.*

Apply motor oil to the following pivots -

○ Side Stand
○ Clutch Lever

○ Front Brake Lever
○ Rear Brake Pedal

Lubricate the following cables with a pressure cable lubber -
○ **(K)** Clutch Inner Cables
○ **(K)** Throttle Inner Cables



Apply grease to the following points -
○ **(K)** Clutch Inner Cable Upper Ends
○ **(K)** Throttle Inner Cable Upper Ends

(K): Should be serviced by an authorized Kawasaki dealer.

NOTE

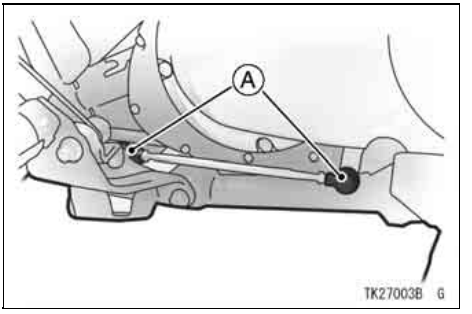
○ *After connecting the cables, adjust them.*

Cleaning Your Motorcycle

General Precautions

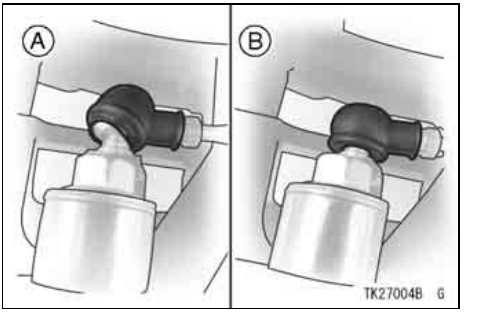
Frequent and proper care of your Kawasaki motorcycle will enhance its appearance, optimize overall performance, and extend its useful life. Covering your motorcycle with a high quality, breathable motorcycle cover will help protect its finish from harmful UV rays, pollutants, and reduce the amount of dust reaching its surfaces.

- Be sure the engine and exhaust are cool before washing.
- Avoid applying degreaser to seals, brake pads, and tires.
- Always use non-abrasive wax and cleaner/polisher.
- Avoid all harsh chemicals, solvents, detergents, and household cleaning products such as ammonia-based window cleaners.
- Gasoline, brake fluid, and coolant will damage the finish of painted and plastic surfaces: wash them off immediately.
- Avoid wire brushes, steel wool, and all other abrasive pads or brushes.
- Use care when washing the headlight cover, and the plastic parts as they can easily be scratched.
- Avoid using pressure washers; water can penetrate seals and electrical components and damage your motorcycle.
- Avoid spraying water in delicate areas such as in air intakes, fuel system, brake components, electrical components, muffler outlets, and fuel tank openings.
- After cleaning your motorcycle, check the rubber boot covering the shift pedal ball joint for correct installation. Be sure the sealing lip of the rubber boot fits into the groove of the ball joint.



A. Rubber Boot

- If the boot is damaged, replace it with a new one. If the boot is not positioned in the groove correctly, replace it in the correct position.



A .Not position
B. Correct position

Washing Your Motorcycle

- Rinse your bike with cold water from a garden hose to remove any loose dirt.
- Mix a mild neutral detergent (designed for motorcycles or automobiles) and water in bucket. Use a soft cloth or sponge to wash your motorcycle. If needed, use a mild

degreaser to remove any oil or grease build up.
- After washing, rinse your motorcycle thoroughly with clean water to remove any residue (residue from the detergent can damage parts of your motorcycle).
- Use a soft cloth to dry your motorcycle. As you dry, inspect your motorcycle for chips and scratches. Do not let the water air dry as this can damage the painted surfaces.
- Start the engine and let it idle for several minutes. The heat from the engine will help dry moist areas.
- Carefully ride your motorcycle at a slow speed and apply the brakes several times. This helps dry the brakes and restores them to normal operating performance.

NOTE

- *After riding in an area where the roads are salted or near the ocean, immediately wash your motorcycle with cold water. Do not use warm water as it accelerates the chemical reaction of the salt. After drying, apply a corrosion protection spray on all metal and chrome surfaces to prevent corrosion.*
- *Condensation may form on the inside of the headlight lens after riding in the rain, washing the motorcycle or humid weather. To remove the moisture, start the engine and turn on the headlight. Gradually the condensation on the inside of the lens will clear off.*

Painted Surfaces

After washing your motorcycle, coat painted surfaces, both metal and plastic, with a commercially available

motorcycle/automotive wax. Wax should be applied once every three months or as conditions require. Avoid surfaces with “satin” or “flat” finishes. Always use nonabrasive products and apply them according to the instructions on the container.

Plastic Parts

After washing use a soft cloth to gently dry plastic parts. When dry, treat the headlight lens and non-painted plastic parts with an approved plastic cleaner/polisher product.

NOTICE

Plastic parts may deteriorate and break if they come in contact with chemical substances or household cleaning products such as gasoline, brake fluid, window cleaners, thread-locking agents, or other harsh chemicals. If a plastic part comes in contact with any harsh chemical substance, wash it off immediately with water and a mild neutral detergent, and then inspect for damage. Avoid using abrasive pads or brushes to clean plastic parts, as they will damage the part's finish.

Chrome and Aluminum

Chrome and uncoated aluminum parts can be treated with a

chrome/aluminum polish. Coated aluminum should be washed with a mild neutral detergent and finished with a spray polish. Aluminum wheels, both painted and unpainted can be cleaned with special non-acid based wheel spray cleaners.

Leather, Vinyl, and Rubber

If your motorcycle has leather accessories, special care must be taken. Use a leather cleaner/treatment to clean and care for leather accessories. Washing leather parts with detergent and water will damage them, shortening their life.

Vinyl parts should be washed with the rest of the motorcycle, then treated with a vinyl treatment.

The sidewalls of tires and other rubber components should be treated with a rubber protectant to help prolong their useful life.

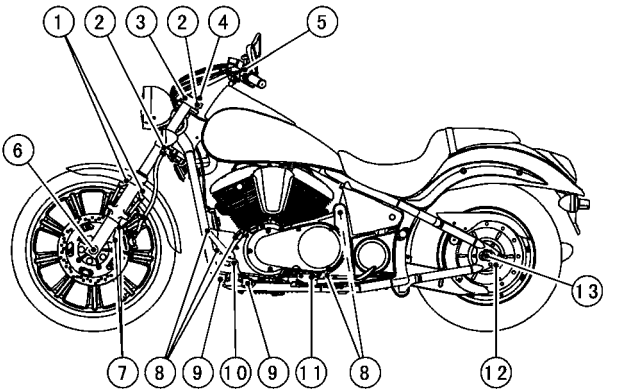
⚠ WARNING

Rubber protectants can be slippery and, if used on the tread area, cause loss of traction resulting in accident causing injury or death. Do not apply rubber protectant to any tread area.

Bolt and Nut Tightening

In accordance with the Periodic Maintenance Chart, it is very important to check the tightness of the bolts and nuts listed here. Also, check to see that each cotter pin is in place and in good condition. Please ask your authorized Kawasaki dealer for torque values.

1. Front Fender Mounting Bolts and Nuts
2. Front Fork Clamp Bolts
3. Handlebar Mounting Nuts
4. Stem Head Bolt
5. Clutch Lever Holder Clamp Bolts
6. Front Axle Nut
7. Caliper Mounting Bolts
8. Engine Mounting Bolts and Nuts
9. Footpeg Mounting Bracket Bolts
10. Shift Pedal Bolt
11. Side Stand Bolt
12. Rear Pulley Nuts
13. Rear Axle Nut



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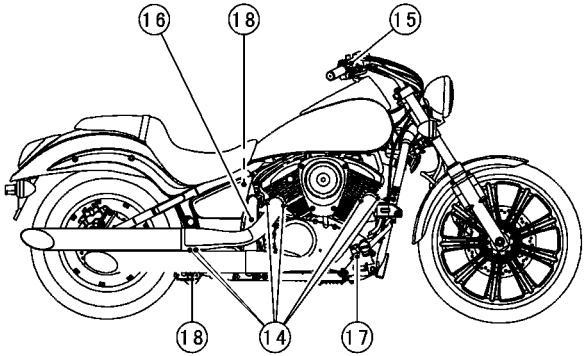
14. Muffler Mounting Bolts
15. Brake Lever Holder Clamp Bolts
16. Pivot Shaft Bolt
17. Brake Pedal Mounting Bolts
18. Rear Shock Absorber Mounting Nuts



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